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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,582	12/15/2000	Steven Teig	SPLX.P0005	3530

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EXAMINER	
CHU, CHRIS C	
ART UNIT	**PAPER NUMBER**
2815	

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Applicati n N .	Applicant(s)	
	09/739,582	TEIG ET AL.	
	Examiner	Art Unit	
	Chris C. Chu	2815	

-- *The MAILING DATE of this communication app ars on the cover sheet with th correspondence address* --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16 - 39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16 - 39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. The preliminary amendment filed on June 12, 2002 has been received and entered in this office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 16 ~ 23, 26, 28 ~ 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchida et al. in view of Juengling.

Regarding claim 16, Fuchida et al. discloses in Fig. 11 and column 8, lines 44 ~ 57 an integrated circuit comprising:

- a plurality of metal layers (10 ~ 50) comprising a plurality of conductors to interconnect components in an integrated circuit, said metal layers comprising:
    - a first metal layer group (20, 40 and 50) comprising at least one metal layer, said metal layer in said first metal layer group comprising at least one self contained layout section of the first metal layer group, wherein a preferred

direction defines a direction, relative to the integrated circuit boundaries, for at least fifty percent of conductors, and said self contained layout section comprising a routing of conductors, for a portion of said metal layer, developed independent from routing of conductors for circuits in said integrated circuit.; and

- a second metal layer group (10 and 30)comprising at least one metal layer, said metal layer in said second metal layer group comprising a plurality of conductors deposed in a preferred diagonal direction in a portion of the metal layer directly adjacent to said self contained layout.

Fuchida et al. does not disclose a self contained layout section of the first metal layer group comprising conductors deposed in a preferred Manhattan direction. However, Juengling discloses in Fig. 1 a self contained layout section (z) of the first metal layer group comprising conductors deposed in a preferred Manhattan direction (2L). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Fuchida et al. by using a preferred Manhattan direction as taught by Juengling. The ordinary artisan would have been motivated to modify Fuchida et al. in the manner described above for at least the purpose of providing isolated lines (column 3, lines 28 and 29).

Regarding claim 28, the method steps are disclosed by Fuchida et al. and Juengling for the same reasons provided above in the device claim 16.

Regarding claims 17 and 29, Fuchida et al. discloses in Fig. 11 said self contained layout section being independent of a layout for said second metal layer group.

Regarding claims 18 and 30, Fuchida et al. discloses in Fig. 17A a plurality of self contained layout sections in said first metal layer.

Regarding claims 19 and 31, Fuchida et al. discloses in Fig. 11 and column 8, lines 44 ~ 57 at least one of said self contained layout sections comprising a wiring direction perpendicular to a wiring direction of a second one of said self contained layout sections.

Regarding claims 20 and 32, Fuchida et al. discloses in Fig. 11 said self contained layout section comprising an entire one of said metal layer in said first metal layer group.

Regarding claims 21 and 33, Fuchida et al. discloses in Fig. 11 said first metal layer group comprising three metal layers.

Regarding claims 22 and 34, a further difference between Fuchida et al. and claimed invention is said three metal layers each comprising conductors deposed in preferred Manhattan directions. However, Juengling discloses in Fig. 1 a preferred Manhattan direction (2L). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Fuchida et al. by using a preferred Manhattan direction as taught by Juengling to form said first metal layer comprises a preferred Manhattan direction complementary of a preferred Manhattan direction of said second metal layer; and said second metal layer comprises a preferred Manhattan direction complementary of a preferred Manhattan direction of said third metal layer. The ordinary artisan would have been motivated to modify Fuchida et al. in the manner described above for at least the purpose of providing isolated lines (column 3, lines 28 and 29).

Regarding claims 23 and 35, Fuchida et al. discloses in Fig. 11 and column 8, lines 60 ~ 62 said diagonal direction comprising a direction 45 degrees relative to said integrated circuit boundaries.

Regarding claims 26 and 38, Fuchida et al. discloses in Fig. 11 said self contained layout comprising a layout with a design independent from said layout of said second metal layer group.

4. Claims 24 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchida et al. and Juengling as applied to claims 16 and 28 above, and further in view of Funaki et al.

Fuchida et al. discloses the claimed invention except for said diagonal direction comprising a direction 60 degrees relative to said integrated circuit boundaries. However, Funaki et al. discloses said diagonal direction comprising a direction 60 degrees relative to said integrated circuit boundaries (read column 12, lines 1 ~ 45). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to further modify Fuchida et al. by including the 60 degree for diagonal direction as taught by Funaki et al. The ordinary artisan would have been motivated to further modify Fuchida et al. in the manner described above for at least the purpose of decreasing resistance in contact regions.

5. Claims 25, 27, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchida et al. and Juengling as applied to claims 16 and 28 above, and further in view of Igarashi et al.

Regarding claims 25 and 37, Fuchida et al. discloses the claimed invention except for said self contained layout comprising a layout for a memory block. However, Igarashi et al. discloses in column 5, lines 38 ~ 43 and Fig. 25A a self contained layout comprising a layout for a memory block. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to further modify Fuchida et al. by using a memory block as taught

by Igarashi et al. The ordinary artisan would have been motivated to further modify Fuchida et al. in the manner described above for at least the purpose of providing a PLL to the flip-flops (column 20, line 28).

Regarding claims 27 and 39, Igarashi et al. discloses in Fig. 25A said self contained layout section (SRAM) comprising a section less than 10 percent of the entire area of said metal layer.

Response to Arguments

6. Applicant's arguments with respect to claims 16 and 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu
Examiner
Art Unit 2815

c.c.
September 19, 2002

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800